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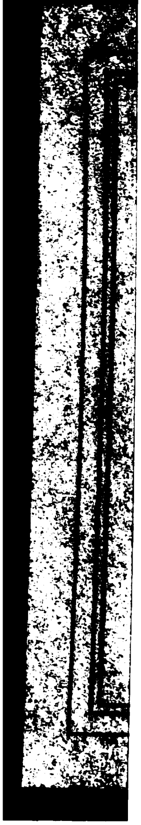

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LUNGLEY'S

UNSINKABLE IRON SHIPS.

REPRINTED, BY PERMISSION, FROM THE STEAM
SHIPPING CHRONICLE.

LONDON:
21, CANNON STREET, CITY.

1861.

Eng 5058.61
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June 21, 1938

PREFACE.

I GLADLY avail myself of the privilege kindly granted to me by the Proprietors of the *Steam Shipping Chronicle* to reprint from their publication of Friday, the 12th July, an article regarding the Unsinkable Screw Steam-ship *Briton*, built and launched by me for the Union Steam-ship Company.

I intended before this time to have published a pamphlet explaining the unsinkable plan of ship-building, but a business man's time is not always at his own disposal; and for the present this article will perhaps satisfy the public.

The *Briton* is open for inspection, and I will be glad to give instructions for the showing of my various models to gentlemen interested in the progress of ship-building.

CHARLES LUNGLEY.

21, *Cannon Street, City, July* 15*th,* 1861.

UNSINKABLE IRON SHIPS.

SHIPS which will not sink under any circumstances, whether on a lee or weather shore, whether on the rocks or off them, whether pierced by shot or shell, or run into, or on fire, is a discovery which cannot fail speedily to commend itself to the public, and is destined, before many years are over, to revolutionise ship-building, not in this country only, but throughout the world. The discovery is no mere theory, which may fail in being worked out, nor is it doubtful whether any one will be found to risk his money in what, after all, may prove a failure; but the staunch unsinkable screw steam-ship *Briton*, for the Cape Mail service, was launched last Saturday, and now invites inspection at Mr. Lungley's Dock, at Deptford Green. So simple and perfect is the principle of building ships which will not sink, that the Union Steamship Company, to their lasting honour, ordered the first unsinkable ship yet built; and those whose happiness it may be to make the voyage in the screw steam-ship *Briton* to the Cape may cast care to the winds, assured that, happen what may, the voyage will be made in safety. The Company cannot, we think, do better than substitute unsinkable steamers for the remainder of their fleet, or have their other ships made unsinkable, as the saving of life and property will in the end make the expense of the new fittings profitable. People will venture on voyages in unsinkable steamers who would not have made voyages before, and the insurance offices will learn to take unsinkable risks at considerably reduced rates. There is, in fact, no reason why a higher rate of passage should not be paid on board a vessel which will assuredly make the land in safety, and the difference between the ordinary and unsinkable risks would of course form a legitimate addition to the rate of freight by the safer vessel.

In the report of the launch of the *Briton* given in the *Times* and *Daily News* there is a happy explanation of what Mr. Lungley's invention really is. It is said that the *Briton* is three ships fastened together, and when the lowest ship of all is rendered useless, and filled with water, the two upper ships remain intact and may complete the voyage in safety. On the other hand were the centre ship penetrated by shot or stove in by collision, so as to become filled, or partially filled, with water, the other two ships would still be in a perfect and seaworthy state. As a merely popular explanation of the principle on which the *Briton* has been built this is sufficiently exact, and instead of exaggerating the security provided it is very much understated. By an ingenious contrivance, namely, that of longitudinal bulkheads, or bulkheads along the sides of the ship, the effect of a collision would be local, and instead of filling the whole deck the water would be confined entirely to the injured section of the ship; and when the injured bulkhead was full of water the trim of the ship would not be impaired, as it always is with the existing form of watertight compartment, or the safety of the ship endangered. Thus although the *Briton* would still be seaworthy if one of her decks were full of water, and though her botton were absolutely torn away from stem to stern, the chances are that at any one time not more than one section of one part of any deck would be damaged and filled with water; and in such a case the damage would, as a rule, be easily repaired by sending a man down the trunkway from the main deck to where the water had gained an entrance.

Under what may now be called the old system of watertight compartments, the security provided against total shipwreck, in the event of stranding or collision, is on the whole trifling. Cases have occurred where the damage has not been serious, and the leak such as could be kept under by the powerful pumps supplied to all steamers, but the cases are equally numerous where the water has gained on the pumps, and unseaworthiness and loss have followed from the filling of only one of the three compartments into which steamers are usually divided. Why this should be the case may be easily explained. In the first place, the quantity of water admitted into one compartment is too much for the flotation of the ship, it being demonstrable that if a model, fitted in the usual way with three ~~longitudinal~~ Transverse bulkheads, is filled at the stem or stern to the extent only of a third of the whole capacity of the ship, it will be next to impossible to keep the ship afloat in the smoothest water, while in the case of a moderate swell or gale of wind, the wash which the water would have from side to side would at once lay the ship over, and she would of course fill and go down. In the event of two out of the three old-fashioned watertight compartments getting stove in beyond the power of the pumps to check the leak, the ship would from sheer necessity disappear long before the water in the compartments gained the level of the water of the ocean.

The now obvious defect of this system occurred to the practical and clear-headed Mr. Lungley. He saw that, were ships constructed with two or more bottoms or decks instead of one, the influx of water would be always stopped at a point which would pactically be harmless, or, at the least, fail to make ships unseaworthy, and at the same time prevent the dangerous wash of the water from side to side after it had gained admission into the ordinary compartment or bulkhead. This we believe to be the whole secret of the discovery of this most important improvement in shipbuilding, which, as we have remarked already, promises at no distant period to revolutionise the present shipbuilding system, and make ships what they should be in respect to security and strength. The attention of an eminent practical shipbuilder was directed to the circumstances attending the loss of so many steamers fitted with water tight compartments in the usual way. In some cases it appeared that the passages leading from the one compartment to the other had been open at the time the accident occurred, and, as a matter of course, the compartments were of no use whatever. This suggested the idea of each compartment being communicated with independently and alone from the main deck. Then there was the preventing of the influx of too much water, which suggested the idea of the orlop deck, being a second bottom to the ship, up to which water admitted into the lower hold could only rise, while water admitted on the orlop deck could not descend into the lower hold. The same arrangement obviated the dangerous wash from side to side in the common water-tight compartment; and thus a really perfect ship was at length formed, and without prejudice to stowage or flotation. The proximate causes or conditions of the sinking of ships fitted with water-tight compartments in Mr. Lungley's way cannot now operate or exist, and an unsinkable ship is the result. Mr. Lungley has, therefore, advanced the science of shipbuilding more than any man in his own or any other day, and his name will assuredly be held in remembrance among the benefactors of mankind. He has built a ship which will not sink, and which, being built of iron with new safeguards, cannot burn; and henceforth those who go down to the sea in ships may do so without the risk of perishing either by fire or water.

The Board of Admiralty, in the construction of the *Warrior*, were sensible of the insufficiency of the existing water-tight compartments, and ventured on an improvement which went to some extent in the direction of the discovery of Mr. Lungley; but the result is nothing more than the construction of mere tanks of iron, which, under certain circumstances, could not be reached or made available in any way. The *Warrior* is, therefore, as unsafe as ships constructed with the usual form of iron bulkheads, and if pierced by shot to an extent which would admit more water than her pumps could clear, she would inevitably go down. So long only as the *Warrior* remains impenetrable by shot, is not run into, does not have her sides, or bow, or stern stove in, or her bottom injured on the rocks or ground, she will be safe and seaworthy, but there is not an accident that now proves destructive to any class of vessel but which would prove equally so to our great armour-clad frigate. So with our other iron-cased frigates. They are one and all essentially destructible, both by fire and water, and it is a question of national importance whether they should continue so. At the best, they are on the same level as the French iron and iron-cased frigates; but it is now in our power, thanks to the invention of Mr. Lungley, to make them at once superior. *La Gloire* and the *Warrior* engaged in action, may both go down, because neither has been made unsinkable; but the internal fittings of the *Warrior* have only to be altered to enable that vessel to come unscathed out of a dozen actions after a dozen *La Gloires* have been destroyed. The responsible officers of the Board of Admiralty have, we understand, approved of Mr. Lungley's plans; but whether they will be at once adopted in the Navy is, of course, another matter. Parliament will not, however, we sincerely trust, be prorogued, without the sense of the House of Commons being taken on the subject, as it is costly folly to proceed with interior fittings in our iron-cased ships of war, which, as soon as finished, must, as a mere matter of course, be taken out.

To all our merchant iron ships the invention of Mr. Lungley can be at once applied, and it is stated that Mr. Lungley is prepared to treat with his brother ship-builders on the most liberal terms. An invention of so great simplicity, and so much moment, which will be worked at once, under license, in all countries, and ultimately, no doubt, in the dockyards of all the great naval powers, will, we venture to affirm, be made available to the shipping interest on liberal and easy terms. We have, happily, outlived the days of close monopolies, and Mr. Lungley has the reputation, at least in London, of being keenly alive to the spirit of the times. He must be aware that in the end a moderate royalty would pay him better than the exaction of large license fees from a small number. For the complete security of life and property in unsinkable ships, people would, no doubt, cheerfully pay high prices; but the closer the new fittings aproximate in price to the old the fewer will be the objections to their being adopted on board every iron ship now afloat, and every iron ship which hereafter may be built. It may be true that the travelling public may insist on unsinkable ships, being provided for them, and that capitalists will be found ready to supply the want, no matter what Mr.

Lungley may choose to charge, but we counsel Mr. Lungley to act in this matter as we believe and trust he will act. We recommend him to act not only liberally but generously, as his reward will not only be greater but the honor of an invention of great practical utility will be untarnished by the least approach to anything that may be called sordid.

To an inspection of the *Briton*, at Mr. Lungley's dock, we believe all classes will be welcome. Enough of the interior fittings have been completed to show what the interior of the ship will be when ready for the measured mile. Lloyd's rules have not been transgressed in the least; and the same fittings can be applied to any iron ship without such transgression. A considerable part of the orlop deck has been rivetted down, and some of the tranverse bulkheads are in progress. The engine and boiler rooms, it will be observed, are apart, in water-tight compartments, and should the engine-room of the *Briton* become filled with water the engines will work on undisturbed through the water and find employment in pumping the water out. The arrangements for communicating with the lower deck by independent trunkways from the upper deck alone will be seen, and their fitness and convenience at once recognised. For the state-rooms watertight compartments will be provided, and in the case of fire in the state-rooms, the passengers will only have to step out to allow the compartment to be closed, when, in the total absence of air, the fire would be at once extinguished. Should, however, this prove ineffectual, it would only be required to pump the compartment full of water, and afterwards to pump the water out, when the cabins would be found uninjured. While all this was going on, the *Briton* would proceed uninterrupted on her voyage, her trim and buoyancy not being perceptibly disturbed. Finally, it will be seen on an inspection of the ship that the trunkways by which the different parts of the ship will be reached will facilitate the taking out and in of cargo, and ventilate the *Briton* in every part more thoroughly than any other ship now afloat is ventilated.

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Lungley's unsinkable iron ships ...
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